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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,883

07/20/2004

Yasushi Hashizume

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12/28/2005

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EXAMINER

DICKEY, THOMAS L

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/501,883

Applicant(s)

HASHIZUME ET AL.

Examiner

Thomas L. Dickey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5 and 7 is/are rejected.
- 7) ☒ Claim(s) 6 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

1. The amendment filed on 11/09/2005 has been entered.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by LOWTHER ET AL. (2003/0127686).

Lowther et al. discloses a transformer (center-tapped inductor) that is a combination of two spiral inductors formed with two or more levels of electrically conductive films 120-122-124-126; insulators 242 inserted between pairs of the levels of the films; a continuous spiral interconnect 120-122 having a spiral shape, and including continuous spiral turns (Lowther et al. did not supply their spiral turns with part #s, the turns may be perceived by the fact that continuous spiral interconnect 120-122 changes direction several times, which is consistent with what would ordinarily be understood to be "turns," as claimed), an internal end (seen in the figures at the innermost end of

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continuous spiral interconnect 120-122) located inside the spiral shape, and an external end (seen in the figures at the outermost end of continuous spiral interconnect 120-122) outside the spiral shape, the spiral shape being disposed entirely in an  $i$ -th layer ( $2 \leq i \leq n$ , note that when  $n$  is two, so must be  $i$ ) of the electrically conductive films, and being electrically connected by contact plugs 134-136 to an electrically conductive film 120-122-124-126 in a layer adjacent to the  $i$ -th layer; and a first underpass 132 interconnect including a  $k$ -th layer ( $1 \leq k \leq n-1$ , note that when  $n$  is two  $k$  must be one) of the electrically conductive films 120-122-124-126 that is electrically connected to an electrically conductive film 122 in a layer that is adjacent to the  $k$ -th layer, and that is electrically connected through contact plugs 134-136 to the internal end of the continuous spiral interconnect 120-122, wherein the continuous spiral interconnect 120-122 and the first underpass 132 interconnect are opposite each other, wherein  $j$  ( $1 \leq j < i$ , note that when  $i$  is two,  $j$  must be one) layers of the electrically conductive films 120-122-124-126 are part of the first underpass 132 interconnect, and at least one of the turns of the continuous spiral interconnect 120-122, where opposite the first underpass 132 interconnect, is wider (note that a turn is normally considered "wider" when it has a larger radius than the "parts of the turns" it is "wider" than. The outermost, i.e. "at least one" turn, has a radius larger than "parts of the" inner turns of continuous spiral interconnect 120-122) than parts of the turns of the continuous spiral interconnect 120-122 that are not directly opposite the first underpass 132 interconnect. Note figures 4A, 5A-5E, 6, and 7, and paragraphs 0062, 0063, and 0069 of Lowther et al.

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***Allowable Subject Matter***

3. Claims 6 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 6 and 8 are objected to for form but otherwise allowable. Lowther et al.'s continuous spiral interconnect 120-122 is 100% conductive. Therefore the internal and external ends of Lowther et al.'s continuous spiral interconnect 120-122 are electrically connected to everything that is electrically connected to any part of Lowther et al.'s continuous spiral interconnect 120-122. Therefore it is impossible for Lowther et al.'s second underpass interconnect (marked 132 but on the opposite side of continuous spiral interconnect 120-122 from first underpass 132) to be simultaneously electrically connected to Lowther et al.'s continuous spiral interconnect 120-122 at a point between the internal end and the external end, but not electrically connected to Lowther et al.'s continuous spiral interconnect 120-122 at the internal and external ends thereof. Note claim 6 at lines 4 and 5, where an electrical connection to one point is required but electrical connections at the ends are prohibited. The continuous spiral interconnect of claim 6 clearly must have two electrical breaks preventing electrical connection between the part thereof that must electrically connect to second underpass interconnect, and the internal and external ends of the claimed continuous spiral interconnect, which may not.

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### ***Response to Arguments***

4. Applicant's arguments filed 11/09/2005 have been fully considered but they are not persuasive.

It is argued, at page 6 of the remarks, that "As a result of the crossover interconnections in Lowther, there is no spiral interconnect structure disposed in a single layer and that is essentially planar in the structures described by Lowther." However, the spiral interconnect structure Applicant claims in claim 5 explicitly prohibits a single (by requiring "n levels ( $n \geq 2$ ) of electrically conductive films," note claim 5 line 2) layer that is essentially planar. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a single layer that is essentially planar) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued at page 6 of the remarks that "Further, there are no first and second underpass interconnect structures in Lowther as in the claimed invention." However, Lowther et al.'s figure 4 shows structure 132 passing under lead 130 in order to interconnect first current path 120 with second current path 122. Does this not show the structure of an underpass interconnect structure? If Lowther et al. were to refer to structure 132 of figure 4 as an "underpass" (which they do in each of paragraphs 0060-

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0065), would this convince Applicant that Lowther et al.'s structure 132 is in fact an underpass interconnect structure?

It is argued, at page 6 of the remarks, that "There is, essentially, no internal end and no external end [of the spiral interconnect] in most of the embodiments described by Lowther." However, Applicant does admit that Lowther et al.'s spiral interconnect has a middle. It is an inherent property of any structure having a middle, that such a structure also has ends.

It is argued, at page 7 of the remarks, that "In addition, the rejection is erroneous because the Examiner has twice cited the same elements of Lowther as meeting different limitations of the examined claims. For example, at page 5 of the Office Action, element 132 of Lowther is counted as both the first underpass interconnect and the second underpass interconnect. In fact, only a single such interconnect is illustrated in the cited figures of Lowther so that the application of Lowther to at least claims 6 and 8 is clearly legally and factually incorrect." The only claims that require both a first underpass interconnect and a second underpass interconnect are claims 6 and 8. Applicant has added limitations to these claims that render them allowable for other reasons. Therefore the question of whether Lowther et al. discloses one, two, or many underpass interconnects is moot. However, Lowther et al. in fact discloses a spiral structure having many layers, each of which requires a least one underpass. Since the individual underpasses are identical only one is shown in detail, including cross sections and steps for making, in figures 1-5. In figure 6 Lowther et al. shows two current routers

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210 and 212 on a single level, in order to show that two routers may coincide on the same level. Lowther et al. explains at paragraph 0060 that each current router (such as part 210 or part 212 of figure 6) includes an underpass.

### ***Conclusion***

**5. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

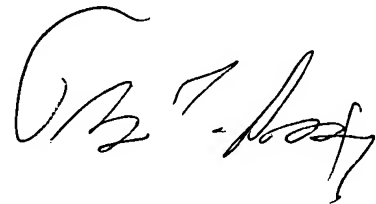
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'T. L. Dickey', is positioned above the printed name.

**Thomas L. Dickey**  
**Patent Examiner**  
**Art Unit 2826**  
**12/05**